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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,980	08/09/2006	Shinichi Terada	2691-000022/US	9530
30593 7590 01/14/2008 HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 8910 RESTON, VA 20195			EXAMINER KAO, CHIH CHENG G	
			ART UNIT 2882	PAPER NUMBER
			MAIL DATE 01/14/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/540,980	TERADA, SHINICHI	
	Examiner	Art Unit	
	Chih-Cheng Glen Kao	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☒ Claim(s) 1-6 and 8 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/27/05, 9/27/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

1. References JP 2001-349849 and JP 11-337507, as listed in the information disclosure statement (IDS) filed June 27, 2005, have already been considered by the Examiner as evidenced by the enclosed signed copy of the IDS filed September 27, 2005.

Specification

2. The abstract of the disclosure is objected to because the abstract may not exceed 150 words. Correction is required. See MPEP § 608.01(b).

Claim Objections

3. Claims 1-6 and 8 are objected to because of the following informalities, which appear to be minor draft errors including grammatical and/or antecedent basis problems.

In the following format (location of objection; suggestion for correction), the following correction(s) may obviate the objection(s): (claim 1, line 9; replacing "substance" with --substrate--), (claim 1, line 13; inserting --have-- before "entered the insulator film"), (claim 2, line 7; inserting --a-- before "specific direction"), (claim 2, line 8; deleting "predetermined"), (claim 2, line 10; replacing "that" with --wherein--), (claim 2, line 12; deleting the comma before the semi-colon), (claim 3, line 9; deleting "predetermined"), (claim 3, line 10; replacing "that" with --wherein--), (claim 4, line 7; replacing "on" with --from--), (claim 4, line 8; replacing "exit" with --exited--), (claim 5, line 7; deleting "predetermined"), (claim 5, line 8; replacing

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“that” with --wherein--), (claim 8, line 6; replacing “on” with --from--), and (claim 8, line 7; replacing “exit” with --exited--).

Claims 2-6 and 8 are objected to by virtue of their dependency. For purposes of examination, the claims have been treated as such. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Houtman (US 5446777).

5. Regarding claim 1, Houtman discloses an apparatus comprising: X-ray generating means (fig. 2, #10) for irradiating with X-rays from a surface side (fig. 2, of #20) necessarily at an incident angle (figs. 1 and 2); and X-ray detecting means (fig. 1, #28) for detecting among reflection components reflected on the surface which have been emitted from the X-ray generating means (fig. 2, #10).

Note that inclusion of a material or article (i.e., an insulator film formed on a surface of a substrate) worked upon by a structure being claimed does not impart patentability to the claims. See MPEP 2115. Therefore, these recitations have not been given patentable weight.

Also note that recitations (i.e., "at an incident angle set to be larger than a total-reflection critical angle of the insulator film but less than 1.3 times a total-reflection critical angle of the substrate" and "for detecting among reflection components reflected on the surface of the substrate of the X-rays which have been emitted from the X-ray generating means and have entered the insulator film, reflection components exiting from the insulator film after entering the pore or particle and scattering, having an exit angle larger than that of reflection components which exit from the insulator film without entering the pore or particle") with respect to the manner in which a claimed apparatus is intended to be employed do not differentiate the claimed apparatus from prior art if the prior art teaches all the structural limitations of the claim. See MPEP 2114.

6. Regarding claim 2, Houtman further discloses wherein the X-ray generating means is provided with: a linear focus X-ray tube (fig. 1, #10); and X-ray component selection means (fig. 1, #2) for allowing, of X-rays emitted from the X-ray tube, a parallel light flux composed of mutually-parallel components of a specific direction lying in a specific wavelength band to enter the measurement target object (fig. 2, #20) at the predetermined incident angle, and that the X-ray detecting means is provided with: a slit (fig. 2, #6) for passing therethrough only a specific-direction component of the X-rays coming from the measurement target object (fig. 2, #20); and

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a position-sensitive X-ray detector (fig. 2, #28) for detecting the X-rays having passed through the slit (fig. 2, #6).

7. Regarding claim 4, Houtman further discloses wherein the X-ray detecting means is provided with a reflection X-ray blocking plate (fig. 2, #8) for preventing a specific specular reflection component from entering a detection surface of the position-sensitive X-ray detector (fig. 2, #28).

Note that recitations (i.e., "for preventing a specific specular reflection component from entering a detection surface of the position-sensitive X-ray detector, the specular reflection component being derived from the X-rays which are reflected from the surface of the substrate after having entered the insulator film and exited from the insulator film without entering the pore or particle") with respect to the manner in which a claimed apparatus is intended to be employed do not differentiate the claimed apparatus from prior art if the prior art teaches all the structural limitations of the claim. See MPEP 2114.

8. Claims 1, 3, and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Mazor et al. (US 6556652).

9. Regarding claim 1, Mazor et al. discloses an apparatus comprising: X-ray generating means (fig. 3, #40) for irradiating with X-rays from a surface side (fig. 3, on #38) necessarily at an incident angle (fig. 3); and X-ray detecting means (fig. 3, #44) for detecting among reflection

components reflected on the surface which have been emitted from the X-ray generating means (fig. 4, #40).

Note that inclusion of a material or article (i.e., an insulator film formed on a surface of a substrate) worked upon by a structure being claimed does not impart patentability to the claims. See MPEP 2115. Therefore, these recitations have not been given patentable weight.

Also note that recitations (i.e., "at an incident angle set to be larger than a total-reflection critical angle of the insulator film but less than 1.3 times a total-reflection critical angle of the substrate" and "for detecting among reflection components reflected on the surface of the substrate of the X-rays which have been emitted from the X-ray generating means and have entered the insulator film, reflection components exiting from the insulator film after entering the pore or particle and scattering, having an exit angle larger than that of reflection components which exit from the insulator film without entering the pore or particle") with respect to the manner in which a claimed apparatus is intended to be employed do not differentiate the claimed apparatus from prior art if the prior art teaches all the structural limitations of the claim. See MPEP 2114.

10. Regarding claim 3, Mazor et al. further discloses wherein the X-ray generating means is provided with: a point focus X-ray tube (fig. 3, #40); and X-ray component selection means (fig. 3, #42) for allowing, of X-rays emitted from the X-ray tube, an X-ray beam composed of specific-direction components which are mutually parallel (fig. 6, #36) and exist in a specific wavelength band to enter the measurement target object (fig. 3, on #38) at the incident angle, and

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wherein the X-ray detecting means is provided with a position-sensitive X-ray detector (fig. 3, #44) for detecting the X-rays coming from the measurement target object.

11. Regarding claim 8, Mazor et al. further discloses wherein the X-ray detecting means is provided with a reflection X-ray blocking plate (fig. 5; #56) for preventing a specific specular reflection component from entering a detection surface of the position-sensitive X-ray detector (fig. 5, #44)

Note that recitations (i.e., "for preventing a specific specular reflection component from entering a detection surface of the position-sensitive X-ray detector, the specular reflection component being derived from the X-rays which are reflected from the surface of the substrate after having entered the insulator film and exited from the insulator film without entering the pore or particle") with respect to the manner in which a claimed apparatus is intended to be employed do not differentiate the claimed apparatus from prior art if the prior art teaches all the structural limitations of the claim. See MPEP 2114.

12. Claims 1, 5, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Koppel (US 5619548).

13. Regarding claim 1, Koppel discloses an apparatus comprising: X-ray generating means (fig. 4, #31) for irradiating with X-rays from a surface side (fig. 2, of #41 and 43) necessarily at an incident angle (fig. 4); and X-ray detecting means (fig. 2, #47) for detecting among reflection

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components reflected on the surface which have been emitted from the X-ray generating means (fig. 2, #31).

Note that inclusion of a material or article (i.e., an insulator film formed on a surface of a substrate) worked upon by a structure being claimed does not impart patentability to the claims. See MPEP 2115. Therefore, these recitations have not been given patentable weight.

Also note that recitations (i.e., "at an incident angle set to be larger than a total-reflection critical angle of the insulator film but less than 1.3 times a total-reflection critical angle of the substrate" and "for detecting among reflection components reflected on the surface of the substrate of the X-rays which have been emitted from the X-ray generating means and have entered the insulator film, reflection components exiting from the insulator film after entering the pore or particle and scattering, having an exit angle larger than that of reflection components which exit from the insulator film without entering the pore or particle") with respect to the manner in which a claimed apparatus is intended to be employed do not differentiate the claimed apparatus from prior art if the prior art teaches all the structural limitations of the claim. See MPEP 2114.

14. Regarding claim 5, Koppel further discloses wherein the X-ray generating means is provided with: an X-ray generating source (fig. 2, #31); and X-ray converging means (fig. 2, #37) for allowing convergence and incidence of X-rays generated from the X-ray generating source onto the measurement target object (fig. 2, #41 and 43) at the incident angle, and wherein the X-ray detecting means is provided with a position-sensitive X-ray detector (fig. 2, #47).

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15. Regarding claim 7, Koppel discloses an apparatus comprising: a point focus X-ray source (fig. 4, #31) for irradiating X-rays from a surface side (fig. 2, of #41 and 43) necessarily at an incident angle (fig. 4); and a two-dimensional position-sensitive detector for detecting scattered X-rays (fig. 2, #47).

Note that inclusion of a material or article (i.e., an insulator film formed on a surface of a substrate) worked upon by a structure being claimed does not impart patentability to the claims. See MPEP 2115. Therefore, these recitations have not been given patentable weight.

Also note that recitations (i.e., “at an incident angle set to be larger than a total-reflection critical angle of an uppermost surface layer”) with respect to the manner in which a claimed apparatus is intended to be employed do not differentiate the claimed apparatus from prior art if the prior art teaches all the structural limitations of the claim. See MPEP 2114.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koppel as applied to claim 5 above, and further in view of Yokhin (US 2002/0150209).

Koppel discloses an apparatus as recited above.

However, Koppel fails to disclose wherein the X-ray generating means is provided with an X-ray irradiation range regulatory plate that is arranged immediately above a position of incidence for the X-rays on the measurement target object at a predetermined spacing.

Yokhin teaches wherein an X-ray generating means is provided with an X-ray irradiation range regulatory plate (fig. 1, #36) that is arranged immediately above a position of incidence for the X-rays (fig. 1, #27) on a measurement target object (fig. 1, on #24) at a predetermined spacing.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus of Koppel with the regulatory plate of Yokhin, since one would have been motivated to make such a modification for optimizing detection (paragraph 57) as shown by Yokhin.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Chih-Cheng Glen Kao
Primary Examiner
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